



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/652,773	08/31/2000	Eric A. Jacobsen	884.313US1	4550
21186	7590	11/27/2006	EXAMINER	
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			D'AGOSTA, STEPHEN M	
			ART UNIT	PAPER NUMBER
			2617	

DATE MAILED: 11/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/652,773

Applicant(s)

JACOBSEN, ERIC A.

Examiner

Stephen M. D'Agosta

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-17,20-23,25-29 and 31-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3-15,22,23,25-29 and 31-33 is/are allowed.
- 6) ☒ Claim(s) 16,17,20 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 16-17 and 20-21 have been considered but are moot in view of the new ground(s) of rejection.

1. All claims are in condition for allowance except for claims 16-17 and 20-21.

The examiner finds nothing novel in these claims.

2. Per the request of applicant's attorney, the examiner has re-signed a few IDS's that inadvertently missed a few prior art references.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16, and 20-21 rejected under 35 USC 103(a) as being unpatentable over Daniel et al. U.S. Patent 6,075,484 in view of Yun U.S. Patent 6,463,295 and Keskitalo et al. US 6,345,188 and Scarpetta et al. US 5,257,031.

As per **claim 16**, Daniel teaches a method for use in wirelessly transmitting a communication signal to a remote location, said method comprising:

determining a direction of said remote location (figure 3, #340);

generating a transmit antenna beam in the direction of said remote location using phased array principles from an array of transmit antenna elements; (A transmit beamformer to generate a transmit beam in the direction of the remote transceiver (figure 3, #330) [eg. using well known phased array principles as disclosed by the applicant in the specification page 5, L9-18]);

but is silent on determining a parameter related to an antenna gain associated with said transmit antenna beam; and

using said antenna gain related parameter to adjust a power level of a transmit signal to be transmitted to said remote location via said transmit antenna beam to maximize said power level while not exceeding mandated transmit power limits and determining a delay setting for a variable delay unit for each of said antenna elements within said array based upon the direction of said remote location.

First and foremost, the examiner notes that it is well known (and inherent) for any/all RF systems to comply with local/federal transmit power limits, hence Daniel's system must inherently comply with the RF standards to which it supports (and/or would support in a USC 103 combined design).

Yun teaches power control (figure 7a, #703 and #711 which inherently requires power control hardware) for a communication station with a multiple antenna array (abstract, figures 8a, 9 and C1, L24-50). The examiner interprets that Yun's power controller will be "limited" between a federally regulated range of transmit power min/maxs. It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Daniel, such that power control is supported for a multi-array antenna, to provide control of RF power output for optimal transmission of the RF signal and decrease interference with other transmitters in the area.

Keskitalo teaches an apparatus/method for steering a multi-array antenna signal in such a way that the gain from the antenna array is greatest in a specified direction (abstract, figures 3-9 and C1, L10 to C2, L65).

Regarding the Variable Delay Unit, the examiner notes that the applicant admits prior art as using VRU's (spec, page 5, L9-19):

"..Furthermore, virtually any array configuration can be used. The transmit beamformer 14 will typically include a separate variable delay unit and variable gain unit for each element of the transmit array 12. The transmit beamformer 14 will also preferably include a processing device that is programmed to determine appropriate settings for the variable gain and delay units to generate a relatively narrow

transmit beam in the direction of the remote transceiver (using, e.g., well known phased array techniques)..”

Furthermore, the applicant's designs/figures do not **explicitly show a VRU**. Lastly, the examiner notes that the term VRU is broad (eg. it does not specifically disclose “what” is being delayed or how), hence the examiner puts forth **Scarpetta**, who teaches a multibeam antenna that provides different beam positions which uses a delaying unit (eg. phase shifter), see Scarpetta's Claim 1 teachings.

It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to modify Daniel in view of Yun, such that wireless transmission for an antenna array with power control also uses antenna array gain parameters to steer the beam in a certain direction using a VRU, to provide optimal RF communication based on steering the array, antenna gain, delay and power control parameters.

As per **claim 20**, the combo teaches claim 16 further comprising an array of receive antenna elements that are arranged in a predetermined pattern for use in receiving a signal from the remote transceiver wherein said DDU includes means for analyzing signal portions received by individual antenna elements within said array of receive elements to determine the direction of the remote transceiver (figure 3, two #312 elements are receive antennas and #340 is the DDU).

As per **claim 21**, the combo teaches claim 16 and the system appears to be located at a ground station (figure 1, #120, #130, #140, #170, #180) shows the system communicating with a satellite) [eg. perform calculations from a single indoor location]

Claim 17 rejected under 35 U.S.C. 103(a) as being unpatentable over Daniel/Yun/Keskitalo/Scarpetta and further in view of Roddy et al. U.S. Patent 6,127,740 and Scarpetta (hereafter referred to as Roddy).

As per **claim 17**, the combo teaches claim 16 **but is silent on** further comprising a duty cycle unit to determine average transmit duty cycle over a predetermined time

and to deliver said average transmit duty cycle information to the PCU to adjust transmit power level of said system.

Roddy teaches a controller that determines the average duty cycle of the desired transmitted signal. The carrier frequency of the intended transmission, which preferably is previously preprogrammed into the controller is then utilized with the determined average duty cycle and the other fixed values and offsets to determine a proper power control signal duty cycle for adjusting the signal strength of the transmitted signal. Determining the necessary characteristics of the power control signal is accomplished, in one example, by utilizing a pre-stored look up table that is programmed into a memory portion of the controller. In another example, mathematical formulas are utilized by the controller to determine the duty cycle of the power control signal based upon the determined signal and circuit factors (C4, L44-62).

It would have been obvious to one skilled in the art at the time of the invention to modify the combo, such that a duty cycle unit is used to determine average transmit duty cycle, to provide means for the PCU to adjust transmit power level as needed for optimal wireless transmission/reception.

Allowable Subject Matter

Claims 1, 3-15, 22-23, 25-29 and 31-33 allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

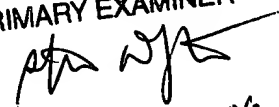
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. D'Agosta whose telephone number is 571-272-7862. The examiner can normally be reached on M-F, 8am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

STEVE M. D'AGOSTA
PRIMARY EXAMINER


11-20-06